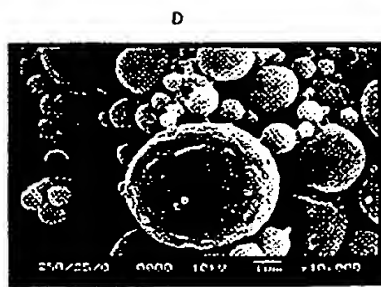
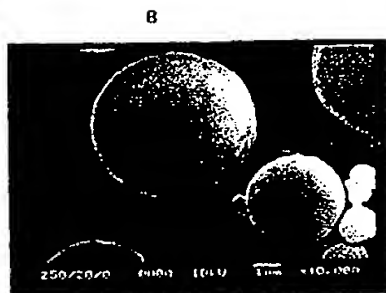
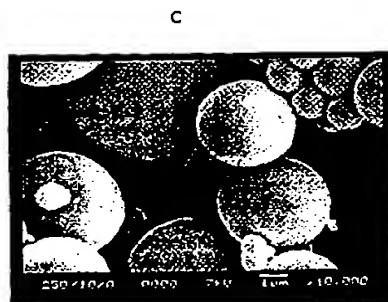
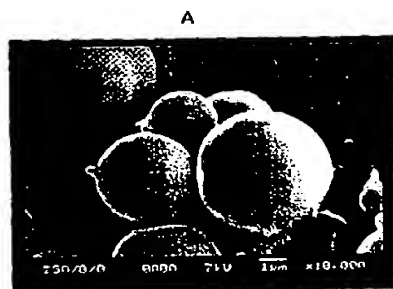


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(21) International Application Number: PCT/KR99/00589 (22) International Filing Date: 29 September 1999 (29.09.99) (30) Priority Data: 1998/41426 1 October 1998 (01.10.98) KR (71) Applicants (for all designated States except US): KWANGJU INSTITUTE OF SCIENCE AND TECHNOLOGY [KR/KR]; 572, Ssangam-dong, Kwangsan-ku, Kwangju 506-712 (KR). SHIN POONG PHARMACEUTICAL CO., LTD. [KR/KR]; 434-4, Moknae-dong, Ansan-shi, Kyunggi-do 425-100 (KR). (72) Inventors; and (75) Inventors/Applicants (for US only): BYUN, Young-Ro [KR/KR]; Keumkwang Apt. 103-1305, Wallgae-dong, Kwangsan-ku, Kwangju 506-302 (KR). KIM, Sang-Yoon [KR/KR]; Woosung Apt. 3-707, Daechi 3-dong, Kangnam-ku, Seoul 135-283 (KR). KIM, Sun-Hee [KR/KR]; Woosung Apt. 3-707, Daechi 3-dong, Kangnam-ku, Seoul 135-283 (KR). CHOI, Yong-Doo [KR/KR]; Jeungheung Park 2-1508, Nongsung 1-dong, Seo-ku, Kwangju 502-201 (KR). HAN, In-Suk [KR/US]; G 105-1025 East Olympic Lease Core, Salt Lake City, UT 84117 (US). LEE, Kwang-Sun [KR/KR]; Kwangjang Apt. 3-605,		Yoido-dong, Yongdungpo-ku, Seoul 150-010 (KR). KIM, Chul-Hee [KR/KR]; Chungku Apt. 210-1050, Yangjimaoul, Soonae-dong, Bundang-ku, Sungnam-shi 463-020 (KR). (74) Agent: CHOI, Kyu-Pal; 824-20, Yeoksam-dong, Kangnam-ku, Seoul 135-080 (KR). (81) Designated States: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG). Published <i>With international search report.</i> <i>Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i>

(54) Title: CONTROLLED DRUG RELEASE SYSTEM OF RETINOIC ACID



(57) Abstract

The present invention relates to a controlled drug release system in which a certain ratio of retinoic acid is incorporated into a microsphere comprising biodegradable polymer and amphoteric block copolymer having both hydrophilic and hydrophobic groups.